

EXECUTIVE SUMMARY

Butte Creek Watershed Education Project

Name of Applicant and Principal Investigators

Research Foundation, California State University, Chico

Donald Holtgrieve, Allen Harthorn,

Department of Geography and Planning, CSU Chico

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Project Description and Primary Biological/Ecological Objectives

This project will be a cooperative effort supported by funding from various state and federal agencies and administered by California State University, Chico (CSUC) and the Butte Creek Watershed Conservancy (BCWC). As an adjunct to the watershed planning process, the development of educational programs for use in Butte County Schools, Butte Community College and California State University, Chico as well as the general public residing in and using the watershed will be completed to raise the level of consciousness of the importance of watershed health. This project will develop and utilize specific education programs targeting non-point source runoff and pollution, recreational degradation of riparian areas and water quality. This effort, supported by a broad range of participants, would initiate that process to establish firm commitments to watershed health with educational programs and restoration actions.

Background and Biological/Technical Justification

Butte Creek has a long history of use since the arrival of Euro-American and other ethnic groups in search of fortunes in California's gold fields. Hydraulic mining, canals built for water conveyance that were converted to other uses such as hydroelectricity, and grazing of livestock have been a part of the Butte Creek history. More recent appropriations of water in the valley portions of the creek have all but used up the existing flows and most of the imported flows. Lack of adjudication in the lower part of the valley portion, unregulated diversions and drainage systems, connection to more Feather River water and seasonal diversion of the entire creek through the Sutter Bypass makes Butte Creek one of the most complicated watersheds in the State. In addition, the modern day development of domestic water supplies, rapid development along the ridge in the town of Paradise and in the lower canyon, and heavy recreational pressures for more than half the year are negatively affecting water quality and quantity concerns. Human disturbance of the primary habitats of the priority species under CALFED is one of the greatest concerns.

Approach/ Tasks/Schedule

The teacher core will be expanded, a field classroom will be established, the number of participating students will be increased and the Watershed Resource Lending Library will make available the selection of classroom curricula. Educational materials, such as slide shows, videos, printed materials and a presentation booth will be developed for public use at workshops and community events. Involvement of the teachers, students and public through seminars, meetings and other workshops throughout the watershed will broaden the awareness of watershed health.

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Justification for Project and Funding by CALFED

Human disturbance of the primary habitats of the priority species under CALFED is one of the greatest concerns. Developing a comprehensive K-12 and public education program that is integrated with the local conservation groups and the agencies that are promoting the efforts is critical to the long term success of CALFED and other initiatives. This project will further the efforts supported by EPA, USFWS and others to provide a balance between humans and the primary habitats and priority species developed by CALFED.

Budget Costs and Third Party Impacts

Request from CALFED for budget costs to complete tasks and both phases of project amounts to \$50,134. No negative third party impacts would be realized from this project. Education will be the sustainable legacy of CALFED.

Applicant Qualifications

The protection and enhancement of local creeks and watersheds by local community groups is a high priority at CSU, Chico. Toward this end, faculty and resources, conservation groups, public agencies, and others as needed are utilized. As a part of its community service mission, it is the policy of the University Research Foundation to organize teams for special projects to provide the kinds of services required for this project.

Monitoring and Data Evaluation

Monitoring and evaluation for the proposed project includes task force teacher evaluations, teacher workshop evaluations, records of the number and hours of teachers, students, and visitors involved in the program, and the education coordinator's annual report.

Local Support/Coordination with other Programs/Compatibility with CALFED Objectives

USFWS, NFWF, CALFED, CSU, Chico and BCWC have been contributing to the program as part of the development of the Watershed Management Strategy. The program has received a \$43,000 EPA 319h grant under Placer County RCD to expand and complement the program. This program is highly compatible with CALFED objectives to further expand and develop local, watershed based education.

Butte Creek Education Project

Applicant and Principle Investigators

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Type of organization and tax status

Auxiliary organization of CSU, Chico as provided for in the Calif. Education Code, Title 5.
Tax Status: Non-profit educational corporation 501 (c)3

Tax identification number

68-0386518

Technical and Financial Contact persons

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Participants/Collaborators in Implementation

NFWF, USFWS, EPA, CALFED, CDF&G, CSU Chico, Butte Creek Education Project, Butte
Creek Watershed Conservancy, Sacramento River Discovery Center, Streaminders, Sacramento
River Preservation Trust

RFP project group type

Other Services Education

Project Description and Approach

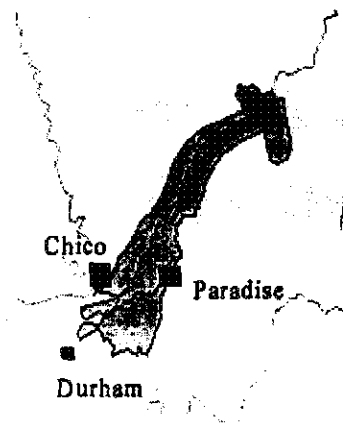
This Butte Creek Education Project (BCEP) is a cooperative effort supported by funding from the U.S. Fish and Wildlife Service (USFWS), CALFED Category III, Environmental Protection Agency 319h (EPA) and the National Fish and Wildlife Foundation (NFWF) and administered by California State University, Chico (CSUC) and the Butte Creek Watershed Conservancy (BCWC). As an adjunct to the watershed planning process, the development of educational programs for use in Butte County Schools, Butte Community College and California State University, Chico and with the general public residing in and using the watershed will be expanded to raise the level of consciousness of the importance of watershed health. This funding will be used to match the EPA contribution to develop and utilize specific education programs targeting non-point source runoff and pollution, and recreational degradation of riparian areas and water quality. The expansion of the teacher core (Task 1) will involve doubling the core from 8 to 16, establishing a field classroom, making available the Watershed Resource Lending Library, and selection of classroom curricula. Curriculum for K-12 programs has been reviewed by the BCEP core teachers and will be utilized in various classes in the 97-98 school year. In the Spring of '98 a formal curriculum proposal will be presented to the Butte County Schools for approval and inclusion in all schools that are willing. Educational materials, such as slide shows, videos, printed materials and a presentation booth are also being developed for public use at workshops and community events (Task 2). Involvement of the teachers and the students with the public through seminars, meetings and workshops throughout the watershed is an important element for broadening the awareness of watershed health. Specific workshops for teachers on mini grants for education and for the public on general watershed information, such as CALFED stressors, will part of Task 2. Finally, further involvement and integration with other existing education programs such as California Department of Fish and Game's (CDFG), "Salmon and Steelhead in the Classroom, Eggs to Fry" and the Sacramento River Discovery Center (SRDC), "Headwaters to the Ocean" river awareness program will spread the message far beyond the classroom. Volunteer efforts will be coordinated with the field classroom and with the public workshops to clean up degraded areas, restore riparian areas and maintain these project sites. This effort, supported by a broad range of participants, has initiated the process to establish firm commitments to watershed health with educational programs and restoration actions.

Location and or Geographic Boundaries of Project

The location of the project is the Butte Creek Watershed and the geographic boundaries of the Chico, Durham and Paradise School Districts.

Expected Benefits

The specific goals of the education project are to educate the public about the impacts of non-point source pollution from surface runoff in developed areas and effects of recreational use on the riparian corridors. The expected benefits will be the reduction in non-point



source pollution and the restoration, protection and enhancement of shaded riverine aquatic (SRA) and instream aquatic habitats by educating rather than regulating. This concept follows the idea that local efforts to resolve loss of habitat concerns are the most effective. Restoration activities will be conducted as part of the education project to continue restoration efforts begun in 1995 at the site of the new fish ladder at the Parrott / Phelan Dam. The Butte Creek Watershed Conservancy donated over three hundred dollars worth of plants and with volunteers from the Conservancy, planted them in early December. Many of the plants survived the floods and the construction to repair the diversion. Further revegetation will be necessary and is being planned for the rip-rap sections and loose banks upstream from the dam this year. This revegetation will have immediate benefits of reducing sedimentation in the 97-98 rainfall years. BCEP core teachers also started revegetation efforts this spring at the Honey Run Covered Bridge, which will be expanded this fall. Bank protection work being proposed by the Natural Resource Conservation Service (NRCS) will also require extensive revegetation and specific workshops will be conducted to help landowners understand the needs and to offer assistance from the school programs. This will help to reduce sedimentation immediately and non-point source pollution in the long run. Other benefits to be targeted will be reducing sedimentation from other non-flood related activities, non-point source pollution, illegal roadside dumping, and educating recreational users to maintain and enhance areas of riparian vegetation so as to maintain and/or reduce water temperatures.

Background and Biological/Technical Justification

Butte Creek has a long history of use since the arrival of Euro-American and other ethnic groups in search of fortunes in California's gold fields. Hydraulic mining has scarred hillsides and left large expanses of dredger tailings throughout the lower part of the canyon section. Canals built for water conveyance were quickly converted to other uses such as hydroelectricity after the gold boom ended. Grazing of livestock has always been a part of the Butte Creek history. More recent appropriations of water in the valley portions of the creek have all but used up the existing flows and most of the imported flows from the West Branch of the Feather River (part of the modern day hydroelectric system). Lack of adjudication in the lower part of the valley portion, unregulated diversion and drainage systems, connection to more Feather River water and seasonal diversion of the entire creek through the Sutter Bypass makes Butte Creek one of the most complicated watersheds in the State. In addition, the modern day development of domestic water supplies and rapid development along the ridge in the town of Paradise and surrounding areas, development in the lower canyon and heavy recreational pressures are negatively affecting water quality and quantity.

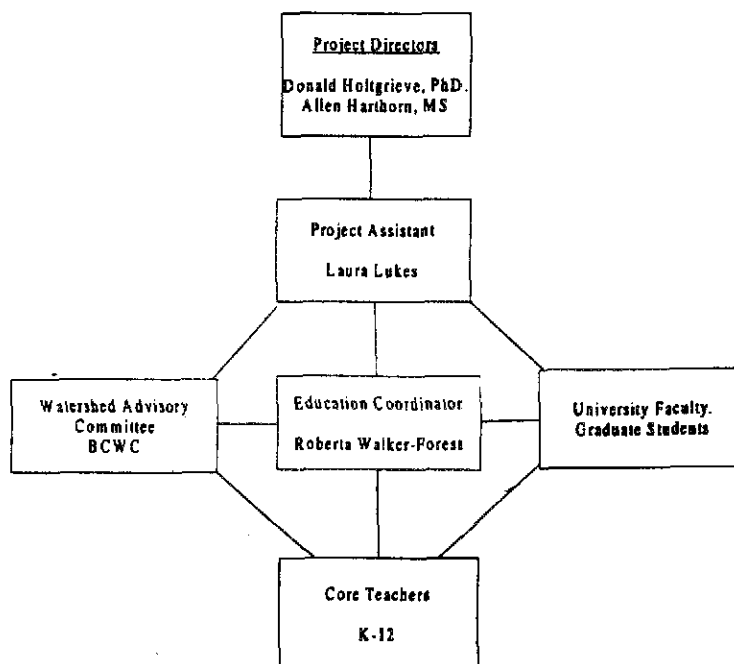
Human disturbance of the primary habitats of the priority species under CALFED is one of the greatest concerns. Many of these disturbances require only further engineering and relatively permanent construction works. However, to change public attitudes toward our interaction with the habitats of other species is not quite so concrete a solution. Many of the habitats were rich with resources that helped fuel the development of the area. Recognizing the spiraling decline in habitat and their related species is very important to change perceptions and fuel the enthusiasm to restore and enhance these resources. Developing a comprehensive K-12 and public education

program that is integrated with the local conservation groups and the agencies that are promoting the efforts is critical to the long term success of CALFED and other initiatives. This project will further the efforts supported by EPA, USFWS and others to provide a balance between humans and the primary habitats and priority species developed by CALFED.

Proposed Scope of Work

Essential aspects of the education program are to gain the support of the teachers, schools, districts, and community by providing the resources, equipment, personnel, and knowledge to make it as simple as possible to become involved in watershed activities. There is a current watershed education task force composed of 8 teachers who have initiated a number of different projects. The first project is to develop, organize and review a Watershed Resource Lending Library for local teachers. Teachers are also developing and organizing classroom ready teaching aids on selected watershed themes. Two workshops on watershed curriculum have been conducted and the number of workshops will be doubled for the up-coming school year. Workshops which allow local teachers to apply for mini-grants in order to fund individual watershed activities are being planned. The number of students who participated in Creek Exploration Hikes will double to over 200. Involvement in local community activities which educate the public about their watershed include Butte Environmental Council's Endangered Species Fair; the Butte Creek Watershed Conservancy's Spring-Run Salmon Celebration; and the CSUC Earth Week Celebration. There will also be continuous involvement with local environmental education programs such as the Salmon and Steelhead in the Classroom from Eggs to Fry program. Finally, plans to establish a field classroom on Butte Creek with a greenhouse, native plant garden, active restoration sites, and nature trails are being developed. The education project will work closely with the Watershed Advisory Committee (WAC), comprised of private landowners, BCWC members, agencies, CSUC faculty, student assistants, volunteer coordinators and private consultants. They will produce curriculum materials identifying the major areas of concern and activities to mitigate them for the various target audiences. The restoration actions will begin immediately as part of a workshop for educators. Follow-up seminars will enhance the methodology. As materials are prepared, they will be introduced in the appropriate institution with selected educators who have been involved in the WAC and the restoration workshops. Many of the target educators have already been involved with restoration work on Chico Creek, as well as Butte Creek, and will be a valuable resource in developing the curriculum. The actions would all be related to improving the water quality and quantity for human and natural processes.

The specific activities and elements to be funded by this grant would be to supplement the personnel services, operating expenses and professional and consultant services of the BCEP.



University faculty would focus on production of important informational components needed for the education project such as implementation and restoration planning. The project manager would assist in the coordination of the process and public involvement through the Butte Creek Watershed Conservancy and other public and private interests in the watershed. Educational coordinators will be responsible for developing curriculum and audio-visual materials. Staff, student assistants and volunteer coordinators and consultants would contribute to the acquisition of information, increasing public involvement and developing the vision for the BCEP.

Monitoring and Data Evaluation

This project is constantly monitoring and evaluating its process. Monitoring and evaluation for the proposed project includes: (1) task force teacher evaluations (2) teacher workshop evaluations (3) records of the numbers of teachers, students, and visitors involved in the program and the hours of involvement (4) education coordinators annual report.

Implementability

The Butte Creek Education Project, throughout the 96-97 school year, has been organizing teachers to form a watershed education task force. This task force is developing a watershed curriculum library, coordinating training workshops on watershed curriculum tools, and developing classroom ready teaching aides on watershed material. The major goal is to double the number of teachers for K-12 school programs in Chico, Durham, and Paradise who are equipped to teach watershed curriculum such as water quality monitoring, life history of anadromous fish species, non-point source pollution remedies, and riparian restoration. USFWS, NFWF, CALFED, CSUC and the Butte Creek Watershed Conservancy have been contributing to the program as part of the development of the WMS. The program has received an \$43,000 EPA 319h grant under Placer County RCD to expand and complement the program. This project is highly implementable and is seeking matching funds for the EPA grant to further expand and develop local, watershed based education.

Costs and Schedule to implement proposed project

Budget Costs

Project Phase and task	Direct labor hours	Direct Salaries and benefits	Overhead labor (general, admin and fee	Service contracts	Materials and acquisition contracts	Miscellaneous and other direct costs	Total costs
Task 1	850	14,035	4,032	2,000		3,500	23567
Task 2	850	14,035	4,032		5,000	3,500	26567

Scheduled Milestones:

Task 1

- Increase number of core teachers from 8 to 16 in 97/98 school year
- Increase number of students who participate in Creek Exploration Field Trips for K-12 grades from 100 to 200
- Establishing a field classroom with:
 - a greenhouse
 - native plant garden
 - active restoration sites
 - nature trails
- Make available a Watershed Resource Lending Library for local teachers
- Select classroom teaching aids on selected watershed themes for use in target districts

Task 2

- Public workshops on mini-grants to help teachers prepare proposals to fund various watershed activities
- Public workshops on watershed information to coincide with a restoration project
- Involvement in three local community activities which educate the public about the watershed
- Involvement with local environmental education programs such as the "Salmon in the Classroom from Eggs to Fry" program
- Integration with Sacramento River Discovery Center "Headwaters to the Ocean" Program

Third Party Impacts

No negative third party impacts would be realized from this project. Education will be the sustainable legacy of CALFED.

Applicant Qualifications

CALIFORNIA STATE UNIVERSITY, CHICO **Statement of Capabilities for Watershed Research and Planning**

The protection and enhancement of local creeks and watersheds by local community groups is a high priority at California State University, Chico. Toward this end, faculty and resources, conservation groups, public agencies, and others as needed are utilized. As a part of its community service mission, it is the policy of the University Research Foundation to organize teams for special projects and to provide the kinds of services described below.

Project Administration: The Research Foundation, as part of its regular operation, searches for government and foundation funding opportunities, makes contact with those organizations and provides assistance in grant proposal writing. Foundation personnel then administer the grant funds, provide auditing, and bookkeeping functions, and insure compliance with all government regulations and procedures.

Faculty: The primary mission of our faculty is teaching our own students. However, with funds generated from grants and contracts, our faculty often undertake research, planning, and other community based projects. Faculty who have particular expertise in watershed research and planning are listed on attached pages. Faculty can also be of service by supervising interns and conducting class projects that relate to the mission of the watershed protection groups (see below). Environmental education faculty are also available to assist local school teachers in creating and teaching curricula about our region's diverse natural environments.

Department, Institutes, Centers and Laboratories: Special units of the university are often organized and called upon to address specific community and regional needs. Those related to watershed protection are listed on the attached pages. In addition to the more obvious administrative units, such as the Department of Geography and Planning, there are others that could be called on to fill specific needs, such as the Department of Communication Design and Journalism, which can produce informational material such as newsletters, videos, and press releases. The Geographic Information Center (GIC) has the capability of collecting and compiling public domain maps through the internet as well as producing GIS maps on request.

Internships and Class Projects: Other possible resources are community based internships supervised by several of the departments and faculty listed on the attachments. In the past, interns have gained personal knowledge and skills while providing community service in environmental monitoring, report writing, field mapping, GIS mapping, interviewing informants, documentary research, classroom teaching assistance, plan design, and questionnaire design and administration. Such win-win arrangements can also be established for small groups of students, and sometimes an entire class may be organized around a particular issue or need, e.g., Geography 224 Planning Studio.

Project Personnel:

Director: **Dr. Donald Holtgrieve**, Professor of Geography and Planning, CSUC. He teaches courses in water resources and environmental planning. Dr. Holtgrieve has been the recipient of many grants and awards, with a particular focus on the environment, specifically water quality and watershed management. He has extensive experience in directing grants awarded by both State and Federal Agencies, as well as official certification in Land Use, Transportation, and Wetlands Planning. Dr. Holtgrieve has supervised over 200 projects over the last 25 years. As Project Director, Dr. Holtgrieve will provide assurance that adequate resources are provided to the project, and will be the first line of communication between CAL FED Category III and CSU Chico.

Manager: **Allen Harthorn, MS**, has many years of experience managing projects for CSU Chico, as well as being an avid fisherman. His personal involvement with and love for the Butte Creek Watershed led him to start the Butte Creek Watershed Conservancy. Mr. Harthorn was personally responsible for obtaining the initial USF&WS grant to develop a Management Strategy for the Butte Creek Watershed. As Project Manager, Mr. Harthorn will continue his public outreach efforts, as well as continuing to develop his extensive and exhaustive list of professional, agency and personal contacts for the Watershed.

Education Coordinator:

Roberta Walker-Forest, M.A., has over ten years experience working in the education community. She has worked for many years in a variety of educational settings ranging from teaching environmental education at outdoor schools to being an environmental interpretive ranger for federal natural resource agencies. Recently, she has been director and assistant director in helping to establish several education enrichment programs in Northern California, including the Butte Creek Watershed Education Program. Roberta has a vibrant enthusiasm for teaching about the environment as well as a deep devotion to helping young people develop a positive relationship with themselves as well as the world around them.

Office Manager:

Laura Lukes has managed project offices for the Research Foundation since April of 1994. She has excellent organizational, managerial, and fiscal accounting skills, as well as knowledge of and experience with fiscal regulations for state and federal grant accounting. Ms. Lukes is responsible for all internal accounting for grants and contracts, document management, and the overall smooth running of the particulars and paperwork for the project.

NONDISCRIMINATION COMPLIANCE STATEMENT

REV. 3-88 FSC

COMPANY NAME

CSU, Chico Research Foundation

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

NAME

Jeff Wright

EXECUTED

EXECUTED IN THE COUNTY OF

Butte

PROSPECTIVE CONTRACTOR'S SIGNATURE

PROSPECTIVE CONTRACTOR'S TITLE

Director, Office of Sponsored Programs

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

CSU, Chico Research Foundation